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Future of Healthy
How to Realize Returns on Health

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Executive Summary

This report focuses on the role of different stakeholders in shaping an ecosystem of health and how to use market forces to make such a system, and the associated returns on health (RoH), happen.

Maximizing Healthy Life Years (MHLY) are investments in preventing non-communicable diseases (NCDs) and mental ill-health. These investments can pay off and generate opportunities across all industries, not just typical healthcare players. All industries are becoming concerned about the health of consumers through the direct or indirect impact of products and services they use, the impact of corporate operations on communities, and the health of employees and the work environment.

An ecosystem of health is always specific to a particular issue, i.e. the RoH sought. Such an ecosystem can align stakeholders with different perspectives around a common goal about desirable returns. The fundamental architecture of an ecosystem of health is based on two roles: health shapers and designers/deliverers. Health shapers who are motivated by social benefits, such as government and non-governmental organizations (NGOs) or organizations from the private sector, can utilize a **range of mechanisms to** (re)**shape markets** in a way that ensures delivering on health outcomes is a viable business. By setting standards and norms, aggregating demand or catalysing behaviour change, these health shapers align RoH with return on investment (RoI) and enable positive business cases for a second type of stakeholder that **designs and delivers offerings**. This report illustrates these concepts of ecosystem roles (shaping, designing, delivering) and includes multiple examples from different sectors and industries.

In some cases, RoH and RoI are already aligned in the current environment, delivering a short-term payback for private ventures. If they are not, health shapers can strengthen the alignment either by decreasing barriers or by creating additional incentives, such as cost/benefit sharing. **Cost/benefit sharing is a renegotiation of costs and benefits and can take either the form of spreading the cost of improved health among stakeholders, sharing the benefits, or both.** It can unlock the value of healthy living when beneficiaries of good health and investors are not aligned. This is particularly critical if the project requires a large investment but benefits different stakeholders.

An ecosystem of health creates the foundation for market-driven solutions to tackle NCDs and MHLY. Because markets depend on customers, the individual must be at the centre to make these ecosystems happen. The engine to set MHLY in motion is to increase both demand and supply for healthy products and services. The behaviour of individuals and their underlying habits and social norms play an important role in creating demand and ensuring supply translates into demand. On the other hand, important levers to translate demand into supply include financial viability, either by providing a short-term payoff or through attractive cost/ benefit sharing. Supply can also be driven by an attractive long-term payoff, often a combination of direct financial returns and indirect returns, such as a competitive advantage. Long-term payoffs are more durable with innovative financing models, such as impact bonds, or stronger ties of health impact to shareholder value, e.g. through inclusion of health in stock market indices.

Looking ahead, key areas for action are laying the foundations for ecosystems of health, shaping an individual-centric environment for MHLY and providing the tools and platforms for multistakeholder collaboration and innovation.

Maximizing Healthy Life Years requires multistakeholder solutions

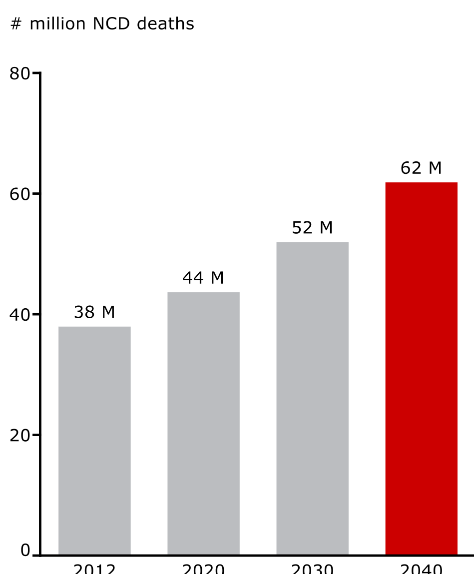
Non-communicable diseases (NCDs), such as diabetes, cancer or heart disease, are a worldwide problem on an unprecedented scale, affecting large parts of the population in both high- and low-income countries. Turning the tide is possible but will require innovative multistakeholder solutions beyond the healthcare sector.

Where some see unsurmountable problems, others see realistic opportunities to do things differently. This is also the case with preventing NCDs and Maximizing Healthy Life Years (MHLY). Deteriorating health, for example, in the rise of obesity and the associated unsustainable increase in healthcare costs, creates a need for new ideas and approaches that push the boundaries of the tried and tested. The rewards are significant, as the 2015 World Economic Forum report, *Maximizing Healthy Life Years: Investments that Pay Off (1)*, has shown – not only by avoiding human suffering but also in unlocking new markets arising from the avoidance of millions of disability adjusted life years (DALY). This report will focus on how to reap these rewards by creating ecosystems that deliver both a return on health (RoH) and a return on investment (RoI).

Tackling the pandemic of NCDs to MHLY

Worldwide trends, such as ageing, urbanization and the globalization of unhealthy lifestyles, have led to a surge of NCDs in countries across the income spectrum. Annually about 38 million people worldwide, approximately the population of California, die from these diseases and nearly three quarters of these deaths occur in low- and middle-income countries (1). This makes deaths from NCDs a bigger killer than all other causes combined; and the problem will only get worse. Despite increasing life expectancy and decreasing age-specific death rates for cardiovascular disease and cancer, the overall burden of NCDs will rise both in terms of DALY (2) as well as deaths (cf. Figure 1). Global drivers include mental ill-health and musculoskeletal problems, as well as country-specific causes (2). NCD deaths are projected to increase to 52 million by 2030 (3) and may reach 62 million, the current size of the population of the UK, by 2040 (cf. Figure 1).

Figure 1: Projected NCD deaths globally (Source: WHO; Bain)



Most NCDs, including the four most common ones (cardiovascular disease, cancer, chronic respiratory disease, diabetes), are chronic diseases which usually progress slowly (3). Hence, preventing NCDs will not only avert deaths but also maximize healthy life years by avoiding prolonged periods of disability, reduced functioning and reduced participation in social and economic life. As outlined in the World Economic Forum's Healthy Living Charter, health should be understood beyond the absence of disease as "an optimal state of well-being" (4).

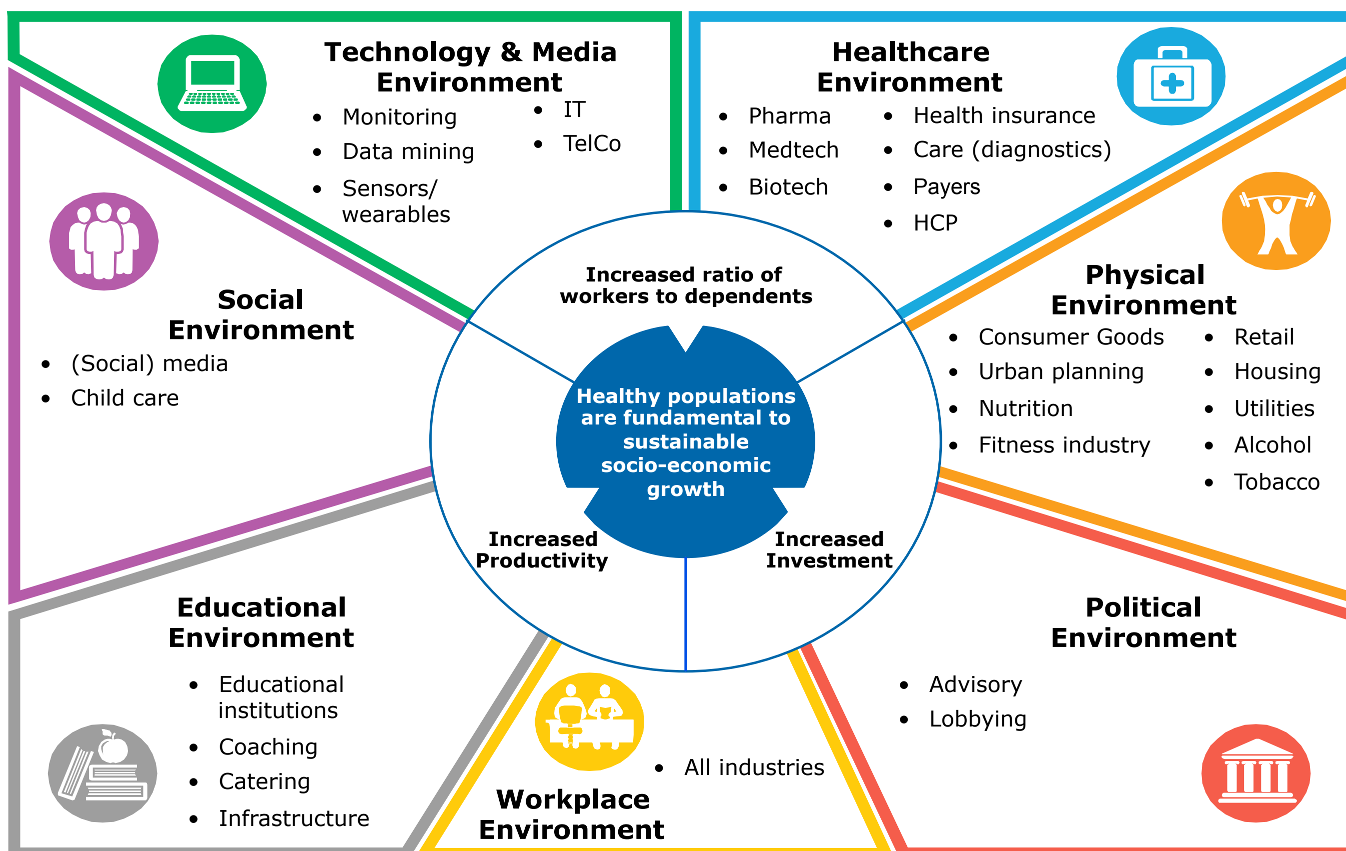
Although not included in the World Health Organization (WHO) definition of NCDs, addressing mental ill-health is another major MHLY lever. A study in collaboration with the World Economic Forum identified mental disorders as the single largest health cost. Projections reach global costs of $6 trillion annually by 2030, which is more than diabetes, cancer and pulmonary diseases combined (5) and to achieve sustainable income growth, they are being encouraged to focus on an emerging challenge to health, well-being and development: non-communicable diseases (NCDs). Furthermore, mental ill-health, which usually starts before adulthood, is a key risk factor for other diseases, such as cardiovascular disease or diabetes (and vice versa) (5,6). Thus preventing mental disorders can also prevent other NCDs. On average one person in four, or one person in five, will experience some sort of mental health problem in the course of a year (8-10), hence, the importance of the expression "no health without mental health".

A multistakeholder problem

A key outcome of the *Healthy Life Years* report was a systems map showing how healthy populations are the result of interdependent actions of different stakeholders (Figure 2). These include healthcare stakeholders. However, prevention of disease also requires – and is an opportunity for – other stakeholders in technology, media, or education. Creating a systems map led to three key lessons from that report:

- Healthy living is a complex and interrelated problem
- It affects a wide range of industries
- It requires systemic solutions

Figure 2: Sectors that make up the systems map of health



These lessons do not mean that there are no pockets of "simple", single, stakeholder-driven opportunities, where an investor can derive a direct benefit, usually a positive financial RoI, without the need to interact with other stakeholders (cf. Desso's AirMaster carpet p. 10). However, because risk factors for NCDs are interrelated, addressing the root causes of unhealthy life years will typically require an ecosystem of multistakeholder collaboration. This is particularly the case when a sizable investment is required and multiple stakeholders can benefit from it. An ecosystem of health, i.e. an environment where health-enabling offerings are viable, can create the required platform for collaboration and puts into motion reinforcing mechanisms that create a sustainable market for health. How can we create ecosystems that deliver on the imperative to Maximize Healthy Life Years? That is the question this report seeks to answer.

Maximizing Healthy Life Years (MHLY)

The RoH of preventing NCD-related deaths and periods of impairment can also produce a positive financial RoI. The *Maximizing Healthy Life Years* report first introduced the concept of MHLY as an additional metric besides avoided deaths. The report demonstrated that money spent on MHLY by preventing NCDs and mental ill-health can be an investment with positive RoI and should be seen as such, rather than simply equating health expenditure with cost. Based on the best available population level data, the report also highlighted a non-exhaustive list of nine "inflection points" in a person's life where health interventions have the greatest payoffs (10). These critical points in a life range from healthy pregnancy and balanced nutrition in childhood to adequate social engagement, which has been shown to mitigate depression in older people (11,12).

Understanding health as an integral part of life underlines the magnitude of the MHLY opportunity and revolutionizes the understanding of the health market. Taking a life-course view of health and assessing all consumption for health impact means that health expenditure is not between 5% and 20% of GDP (13) but, according to our research, might reach 80% and or more, as most products and services will have an impact on health. Thus health is an opportunity across industries, extending far beyond today's healthcare industry.

Opportunity across all industries

The systems map also shows that healthy populations result from cross-industry and cross-sector ecosystems of health. Avoiding the fallacy of narrowly reducing and equating health to healthcare allows businesses to mitigate threats and seize opportunities by proactively engaging and building these ecosystems of health. Three components are critical:

1. **Products and services**: The products and services of a company impact the health of the consumers who buy these goods. The impact can be direct as in the food and beverage industry, or indirect. One example of an indirect effect is that blue light has been shown to have an adverse effect on sleep quality which, in turn, can be linked to a decrease in overall well-being and even an increase in the likelihood of obesity (14). This has created an opportunity for app developers to create programs that filter out blue light as the sun starts to set (15).
2. **Communities**: Businesses also interact with the larger community and can affect its health by providing healthy spaces, through sponsorship, or by being more transparent in addressing concerns about nutritional information. The standing of a business within its community will become more crucial with increasing urbanization. Large metropolitan areas (often larger in size than some countries) become distinct markets in themselves. These local markets are more immediate both in their political as well as their economic mechanisms. Particularly in developing economies, community engagement is an opportunity to create the basis for future growth by setting off a positive cycle of health and employment, which can create new markets (16,17). Waste Concern, for example, an enterprise started in Bangladesh, converts rubbish from slums into organic fertilizer, providing direct employment and also improving health conditions and increasing crop yields for the community (17,18). Such a healthier, more productive community becomes a more attractive market for other products.
3. **Employees and value chains**: All businesses have a responsibility to provide employees with a safe and healthy workplace. However, the relevance of health extends beyond occupational health and safety. Companies like Google have realized that health-promoting work environments can boost morale and productivity and also be an asset in attracting the best talent (19). Furthermore, better employee health also lowers healthcare costs and, depending on local circumstances, pension costs, and avoids potential liabilities. Similarly, health impact should also be factored in when companies deal with suppliers. This extends to environmental stewardship and the responsibility of companies to prevent health hazards from emissions, toxins, waste and chemicals along their value chain. Aligning incentives for health along the value chain can be a lever for synergies and create stronger, mutually beneficial relationships.

Some industries have already realized the need to act. Between 2008 and 2013, the food and beverage industry has made progress in reformulating products, improving nutritional information to customers as well as extending responsible marketing initiatives to children globally (20). However, more needs to be done to turn the tide on the NCD pandemic.

What is holding us back?

Acknowledging MHLY is an opportunity for players both inside and outside the healthcare industry and is a growing trend. However, there is still much to be done before it becomes the norm and companies look beyond short-term financial rewards. Michael Porter and Mark Kramer coined the term “shared value” (17) to capture the notion that fostering societal progress, including improving health, is in the self-interest of companies, as it allows them to decrease costs through reduced training needs and, more importantly, to drive growth by developing markets and gaining a competitive advantage.

Integrated delivery networks and centralized systems with strong government control provide evidence that different stakeholders can align incentives around health. The next two chapters will look at the architecture of such an ecosystem of health and how to make it happen.

Architecture of an ecosystem of health

An ecosystem of health will always be specific to a particular health issue, i.e. the particular RoH sought. This RoH can be for example decreasing obesity or addressing mental health issues. Each issue brings together a different set of stakeholders, with different values and seeking different returns. Building such a customized ecosystem requires two types of roles: shaping the environment; and designing and delivering offerings.

These roles are tied to the types of return sought and are interdependent. Stakeholders motivated by social benefits shape environments in a way that can produce a positive business case (or RoI) for stakeholders who design and deliver offerings with a specific RoH.

Value can be intrinsically aligned. In this case investors receive an adequate RoI while delivering a positive health impact. In other instances, health shapers have to create an adequate physical, economic and social environment to align RoH and RoI or negotiations between stakeholders are necessary to share benefits and costs fairly.

Desirable returns are individual and situational

The *Maximizing Healthy Life Years* report calls for a more holistic view on RoI. Typically, the RoI is understood as a purely financial ratio, where both the investment as well as the return is measured in monetary terms. A starting point for a more holistic view is to consider what else constitutes a desirable return, i.e. what stakeholders value. As Figure 3 shows, desirable benefits from health and well-being differ across stakeholders, are always situational and often have only an indirect financial impact.

In an ecosystem of health, the RoH has to translate into what constitutes value to different stakeholders. Ultimately, each stakeholder will assess the balance of costs and benefits and decide whether there is sufficient RoI to make an engagement worthwhile.

Aligning value

RoH and RoI can overlap in the current environment. For private ventures this is the case if there is a direct **short-term financial payback.** For example, the carpet-maker Desso has created a carpet that can help to improve indoor air quality by capturing more fine dust than standard floor-coverings. This yields an RoH as fine dust has been linked to serious health problems (21), such as respiratory disease, but is also a powerful sales pitch to parents whose children suffer from asthma.

With sufficient overlap, an offering can make sense financially as well as from a health point of view. In this case, value is **intrinsically aligned.** For example, Vitality, a South African health promotion and disease prevention programme, not only provides positive health outcomes but also allows for a sustainable business model (22). Vitality builds an ecosystem that enables a profitable RoH for its suppliers and partners, such as supermarkets providing discounts on healthy foods (22). This makes Vitality a stakeholder that is both shaping a market and designing and delivering a product.

Figure 3: Benefits of health and wellness offerings for stakeholders, ordered by desirability (Source: Bain; World Economic Forum)

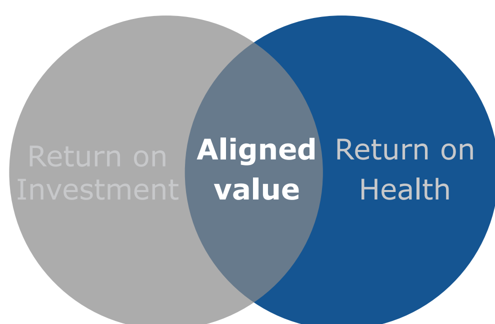
PUBLIC	NOT-FOR-PROFIT	BUSINESSES
• Decreased public spending (social & health care costs) • Economic development/ attractive location • National security • Political capital • …	• Foster the cause of the organization • Demonstrate visible impact to donors • Seat at the table • …	• Growth - Revenue upside - Shareholder value • Competitive advantage - Win and retain talent - Public goodwill (reputation & branding) • Lower costs • Avoid/ minimize liabilities (workforce, environment, customers) • …
INDIVIDUAL		
• Wellbeing • Positive experiences/ pleasure	• Social capital and status • Social connections & community	• Cost avoidance • …

Desso – AirMaster Carpet (21,23)

What is being done?	Healthier products as a business opportunity: carpet that captures and retains fine dust eight times more effectively than smooth floors and four times more effectively than standard carpets, while at the same time releasing dust more easily than standard carpets when vacuumed
Role	Designing and delivering
Partners	n/a
RoH	Decrease in respiratory disease by improving indoor air quality
RoI	☒ Short-term financial payback ☒ Long-term/indirect financial payback ☐ Attractive cost/benefit sharing with other stakeholder

Some offerings that MHLY have higher uncertainty due to an **indirect or long-term financial payback**. In these cases, the expected payback has to be high enough to compensate or health shapers have to create a stronger alignment of RoI and RoH. Health shapers have a range of tools to increase overlap of RoI and RoH, either by decreasing barriers or creating additional incentives. Examples include putting a price on cost otherwise borne by society or via cost/benefit sharing.

Figure 4: Aligned value



Roles in solving the multi-stakeholder problem

Solving a complex multistakeholder problem like MHLY requires agreeing on common goals. Starting with building an ecosystem of health with a clearly defined RoH and then deriving sector and stakeholder-specific incentives and initiatives prevents misalignments and inconsistencies.

An example for such misalignments is the regulatory classification of smartphones. These devices can be used to collect a wide variety of data on the health of its owner, holding tremendous potential to improve health and prevent disease. However, it is unclear whether mobile phones are legally considered to be medical devices. Medical devices produce medical data, which is protected by existing laws such as the Health Insurance Portability and Accountability Act (HIPAA) in the US. If phones are not regarded as medical devices, the same data is health data and *not* protected. This environment of legal uncertainty is halting progress, as stakeholders who seek to create offerings based on mobile phone data do not know whether they will have access to this data.

Aligning around the common goal of maximizing health (while at the same time protecting the privacy of users) rather than focusing on technical definitions (such as what constitutes a medical device) would allow the regulator to maximize the social benefit of technology and unlock business opportunities for entrepreneurs.

Creating an ecosystem of health usually involves two main roles:

- Shaping **markets**
- Designing and delivering **offerings**

These are not necessarily sequential activities and may form an iterative process that can be initiated by either side. The base case is to have one party shaping and another designing and delivering. However, more complicated situations are possible where several parties are designing and delivering interdependent products or services in an environment that is shaped by multiple stakeholders.

The third stakeholder, not mentioned above but underlying all further considerations, is the individual. Success of MHLY crucially depends on individual behaviour and choices. Thus both the shaping of markets and the designing and delivering of offerings have to happen with the individual in mind.

Shaping markets

By shaping, a stakeholder creates the conditions for an ecosystem that delivers a specific **RoH**, such as decreasing obesity or reducing respiratory disease. The health shaper can either produce change in an **entire market** or along its **own value chain**.

There are three main mechanisms to shape markets. **Setting standards and norms**, by a stakeholder acting as an aggregator of demand or as a catalyst of behaviour change. Setting standards and norms through legislation or regulation is typically the role of the public sector. A holistic approach to health is critical for success. For example, the Dutch government rolled out "*Alles is Gezondheid*" ("Everything is Health"), a comprehensive programme to stimulate broad social engagement (24). However, setting standards and norms is not the sole domain of the

government. The international Choices Programme awards a front-of-pack logo to products that have been successfully evaluated against a set of product criteria based on international dietary guidelines (25). These criteria have since formed the basis for national health labelling programmes as well as reformulations (26). Private companies are also shaping markets by setting precedents, establishing new business models such as social entrepreneurship or introducing new financing tools like health impact bonds.

The Choices Programme (26-28)

What is being done?	Certification in a front-of-pack logo for most healthy food products per product category
Role	Shaping (norm-setting, shaping market for healthy products) Designing and delivering (revenues from certifications and memberships)
Partners	Food manufacturers Food retailers Caterers Public sector (WHO, European Commission, governments) Independent scientists
RoH	Out of a sample of 821 products over 28% newly introduced, healthier products (e.g. lower in saturated fat, sugar or salt) and over 20% reformulated products (27) Increases transparency on nutritional value and makes healthy choice easy for consumers
RoI	☒ Short-term financial payback ☒ Long-term/indirect financial payback ☐ Attractive cost/benefit sharing with other stakeholder

Dutch Government (2014-2016) – "Alles is Gezondheid" ("Everything is Health")

What is being done?	Create conditions for activities with a sustainable effect on health by bringing coordination to a fragmented health promotion field: stakeholders make public pledges for which they are publicly held accountable
Role	Shaping (norm-setting)
Partners	Parents Educational sector Sports clubs Municipalities Six ministries (including Health, Economic Affairs and Infrastructure) Employers Businesses NGOs
RoH	Received 296 pledges involving over 900 organizations for activities that contribute to the goals to curb the increase of NCDs and to diminish the differences in health between socio-economic groups
RoI	☐ Short-term financial payback ☒ Long-term/indirect financial payback ☒ Attractive cost/benefit sharing with other stakeholder

Catalysts initiate change that will become self-sustaining, thereby eliminating a need for catalysts in the mid to long term. Examples for market shaping as a catalyst are Fat Bird in Singapore and Revolution Foods in the US (see below). Fat Bird, initially a government-sponsored running group, helps people make exercise a habit by embedding running into their daily lives. After a critical mass was reached, the programme has become viable without further government support. Revolution Foods is a social enterprise that targets eating habits by providing healthy school lunches. Food preferences are shaped early in our lives and by establishing healthy eating as the norm in childhood, Revolution Foods can make an impact on children's lives that extends far beyond their school years.

Health Promotion Board of Singapore – Fat Bird (28)

What is being done?	Acts as a catalyst: government-sponsored running group, which now continues without government support
Role	Shaping (norm-setting, catalyst)
Partners	Government (support since discontinued)
RoH	Provides motivation and social accountability for regular exercise, a mitigating factor for obesity
RoI	☐ Short-term financial payback ☒ Long-term/indirect financial payback ☐ Attractive cost/benefit sharing with other stakeholder

Revolution Foods – Revolution Foods (29)

What is being done?	Acts as a catalyst: provides healthy school lunches to turn children into lifelong healthy eaters
Role	Shaping (catalyst) Designing and delivering
Partners	School districts Food retailers
RoH	Builds healthy habits early on; educates children about healthy eating One million healthy school meals served per week
RoI	☒ Short-term financial payback ☒ Long-term/indirect financial payback ☐ Attractive cost/benefit sharing with other stakeholder

Aggregators, on the other hand, are collating demand and/or supply and ensure the required scale to make offerings viable. In Singapore most businesses are located in business parks but may not have the scale for a company-run workout programme. However, by pooling demand from all companies within a business park, they can achieve critical mass required for regular exercise classes (cf. p. 14).

An example for driving change along its **value chain** is Vitality, a health promotion and disease prevention programme by the South African insurer Discovery. Vitality includes cash back for healthy food purchases and paying for gym memberships. By incentivizing healthier lifestyles, Vitality expands the market for the suppliers of respective offerings. In return, a larger market shifts norms towards healthy. It applies these concepts to health, life and motor vehicle insurance around the world (22,30).

Discover – Vitality (22,30-32)

What is being done?	Encourages and enables healthy behaviour of insured and shares benefits (lower costs) through a rewards programme
Role	Shaping (value chain) Designing and delivering
Partners	Retailers Employers
RoH	In South Africa, highly active participants in the programme were shown to have 35% lower risk for cancer and mental illness. At the same time, Vitality was able to lower healthcare costs, on average reducing hospitalization costs by $184 for the highly active participants (32).
RoI	☒ Short-term financial payback ☒ Long-term/indirect financial payback ☐ Attractive cost/benefit sharing with other stakeholder

Designing and delivering offerings

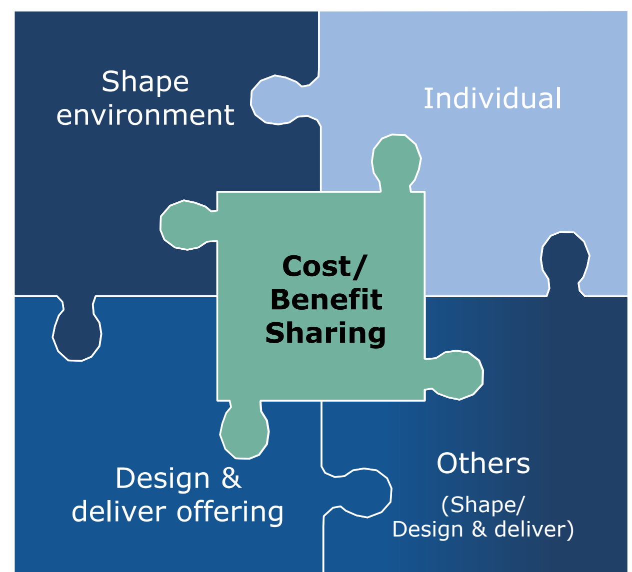
Within a given environment where RoH and RoI are aligned, the other role besides shaping markets is to design and deliver offerings that allow individuals to live healthier lives and deliver an **RoI**. One type of offering is internal to the company such as enhancing health through workplace health programmes. The return of such offerings can be direct, through reduced healthcare costs due to enhanced employee health; or indirect, through enhanced productivity or lower recruiting costs due to better retention.

However, typically offerings will be primarily external, a product or a service that promotes and improves health, while being financially sustainable. Different models are possible and valid here, from a purely private venture to social entrepreneurship or ventures that are run by the public sector. For the latter, the RoI will be more social and indirect, while private ventures have to seek economic returns. This can lead to conflict if doing the "right thing" does not allow delivering target levels of return for the shareholders.

Cost/benefit sharing

Cost/benefit sharing is a renegotiation of costs and benefits between stakeholders involved in a healthy offering. It can either take the form of spreading the cost of improved health among stakeholders, sharing the benefits, or both. It can unlock the value of healthy living when the beneficiaries of good health and investors are not aligned. This can be within as well as between stakeholder groups – and should also include the individual (Figure 5). Sometimes offerings build on each other or benefits are unequally distributed. Or an offering requires significant resources in shaping the environment but those who design and deliver the offerings reap the majority of financial benefit.

Figure 5: Unlocking offering through cost/benefit sharing



The most straightforward way to share benefits is to have a revenue-sharing agreement. An example for this is stakeholders involved in database health recommendations. These recommendations are currently hampered by the lack of interoperability of medical, health and wellness data. Data owners presently derive insufficient benefit from openly sharing their data. On the other hand, those players who use the data to provide recommendation to customers have several options for monetization. Revenue-sharing – payments from the data users to the data owners – could address this imbalance.

However, benefit-sharing can take other forms. For example, creating a city map that shows the health index, built from factors such as air quality and access to parks or medical facilities, of local neighbourhoods allows the inclusion of the value of health into real estate purchases, analogous to the price premium homeowners are willing to pay for access to good schools.

Costs can be shared either by cost shifting, i.e. one stakeholder contributes or covers the cost of another, or risk pooling. A major hindrance in the US healthcare system for preventive medicine is the delay in payoffs and the possibility that a customer changes insurance in the meantime. Creating a risk pool would be in the interest of all involved parties. Insurers would have to come together and agree which preventive measures to cover. The resulting costs would be split between the insurers according to a to-be-agreed formula that takes into account current enrolment and likely movements of insured between companies in the timeframe until the measures generate a payback.

The business park example, mentioned earlier as an example of aggregation (cf. p. 14), is also an example of cost sharing. While the business park owner derives a benefit from offering fitness classes for employees of tenants, namely increased attractiveness of the property, the value balance is negative. The offering can be realized if individuals either pay to participate in the classes or, as it happened, the government covers the cost of the trainer.

Another example for cost sharing is Naya Jeevan, which means "New Life" in Urdu and Hindi. This social enterprise was founded in Pakistan on the insight that in developing countries many low-income workers, including informal domestic workers, cannot afford health insurance. On the other hand, their employers, often officers or managers of large corporations, rely on domestic staff for key aspects of their daily life, such as household work or childcare. Besides the risk of illness spreading within the employer's household, absence of domestic staff due to illness or illness of a family member can severely impact the informal employer's productivity and thereby adversely affect corporate productivity. Further benefits for the corporate sponsors include customer loyalty and long-term market development. Enabling low-income workers to avoid health-related financial shocks is a key enabler to allow these workers to emerge from poverty and enter the middle class. In this way, corporations are building the foundations of future growth in these emerging markets and are locking in customer loyalty early on in that process.

Naya Jeevan provides catastrophic health insurance that is jointly financed by a value chain intermediary or informal employer (e.g. a retailer, distributor or corporate executive),

the worker and the corporation whose goods are being retailed or distributed. This value chain model has been implemented successfully at Unilever in Pakistan. The company has 800 officers/managers in Pakistan, with about 18,000 workers affiliated with Unilever's core value chain. These workers include domestic workers informally employed by Unilever corporate managers and executives, such as maids, cooks or drivers and their dependents. The cost of coverage is shared as follows: the intermediary (Unilever employees, retailer or distributor) pays between 50% and 80% of the insurance premium for coverage of the low-income worker, which ranges between $1.60 and $2.50 a month and is ideally collected through auto-payroll deductions. Unilever typically pays 10% to 50% of the insurance premium at steady-state while the value chain or domestic workers pays the remaining 10%-20%, which usually amounts to 1% to 3% of his or her monthly income (33,34).

Besides designing and delivering a health insurance product, Naya Jeevan is also shaping the market by aggregating demand and creating new business development opportunities for its partner underwriters by introducing them to a new market of low-income insurance seekers (35).

We have seen three examples of cost/benefit sharing. The exact arrangements vary depending on returns sought by the different partners. But in general, the mechanisms for cost/benefit sharing consist of three steps:

a. Analyse costs and benefits per stakeholder ("value balance")
b. Determine options for sharing of costs and/or benefits
c. Aggregation and volume-based negotiation for enlarged risk pools

Naya Jeevan – Health insurance for corporate value chains and informal domestic workers (33,35)

What is being done?	Co-financed catastrophic health insurance for informal domestic workers and their families in developing countries: corporations contribute to healthcare costs of informal employees of their officers and managers, thereby decreasing health risks to their own staff and improving productivity
Role	Designing and delivering
Partners	Corporations Corporate executives
RoH	Health insurance means access to better healthcare and health for otherwise uninsured individuals and their families At the end of 2013, provided 25,190 people across 83 corporate sponsors with health insurance
RoI	☒ Short-term financial payback ☒ Long-term/indirect financial payback: protect health and higher productivity of executives ☒ Attractive cost/benefit sharing with other stakeholder

Proof of concept

There is proof of concept that the ideas laid out in this chapter work, if executed well. An emerging body of research indicates that socially and environmentally responsible companies are indeed more successful in the long term, both in terms of governance and as Figure 6 shows in stock market and accounting performance (36). It has also been demonstrated that health, in particular, is a good investment: companies that won the Corporate Health Achievement Award for investing in workplace health and nurturing a "culture of health" were shown to outperform the market (37), cf. Figure 7.

However, the effects of health have not yet been explicitly embedded in corporate valuations in the same way as sustainability or environmental footprints. A better alignment of RoH and RoI by including health impact in reporting requirements or stock market indices would allow companies to harness market forces to make MHLY a viable business case.

Figure 6: Comparative performance of investments in high and low sustainability US companies (36)

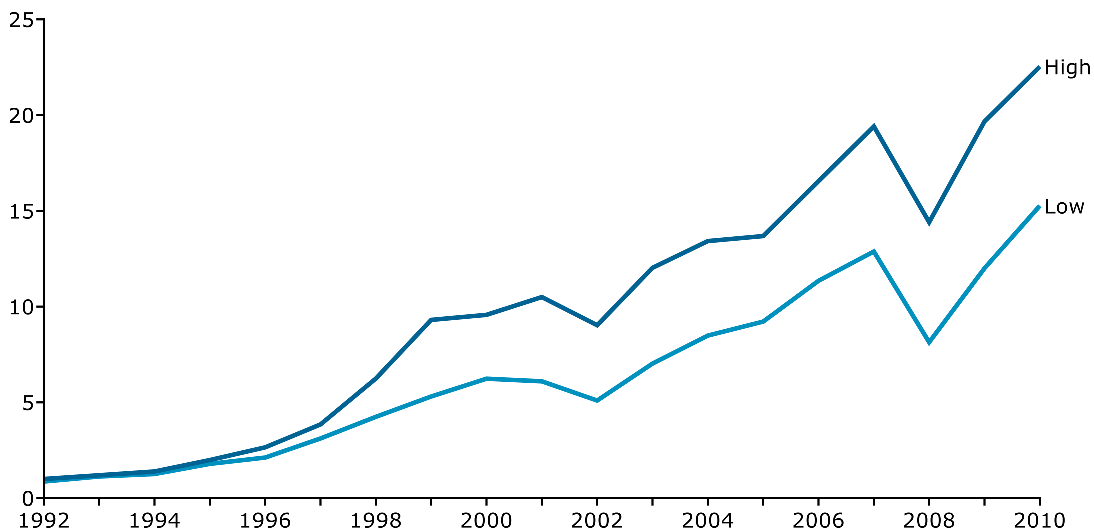
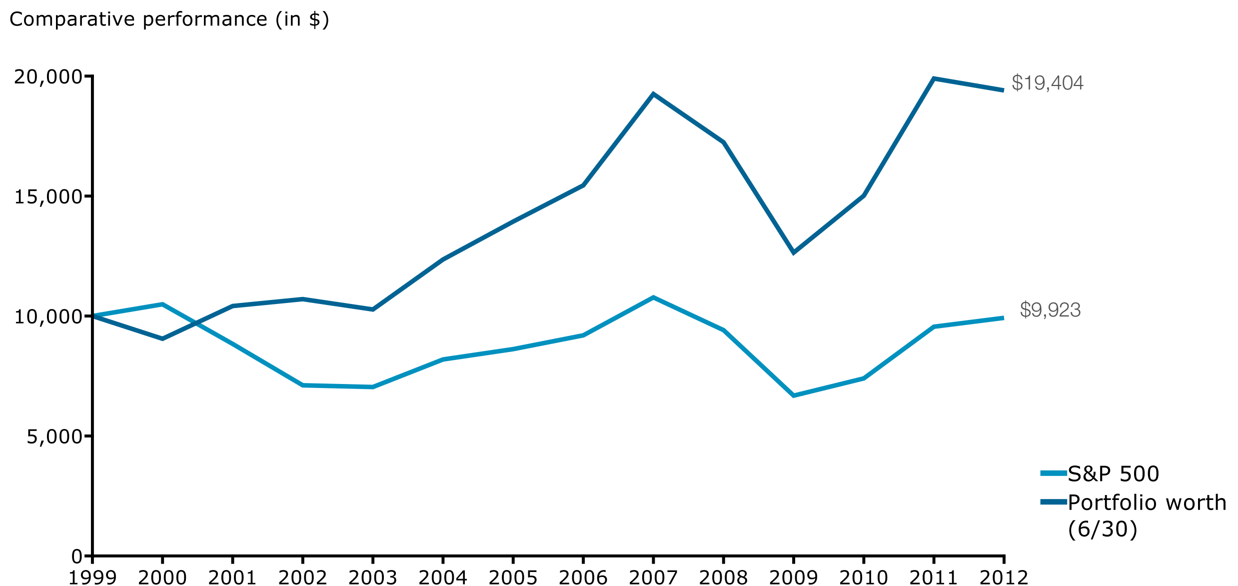


Figure 7: Comparative performance of investments in Corporate Health Achievement Award-winning companies and S&P 500 (37)



Making an ecosystem of health happen

The previous chapter discussed how stakeholders shaping the markets play an important role by creating incentives and setting structures for an ecosystem of health to deliver a specific RoH. Given the scale of the NCD problem, there is no alternative to such a market-driven solution. However, markets depend on customers and, as such, the individual has to be at the centre of every ecosystem of health.

Creating a market for health

Health shapers have to build on the market forces of demand and supply to create sustainable, self-reinforcing ecosystems of health. Besides shaping the supply side, an alternative approach is to shift societal perceptions to ultimately reach a tipping point. By reaching this point, the market permanently changes and sufficient and sustained demand drives further supply for the healthy offering. These changes can also first be seen in local markets, which will eventually drive change in the international market.

For example, until a few years ago, in many western countries buying organic produce was limited to a small group. However, the perception that the price premium is good value for the health benefits associated with lower exposure to pesticides or antibiotics quickly became mainstream. Consequently, organic produce, which used to be a niche product to be found only at special stores, is now stocked at all leading supermarkets. The benefits derived from this increase in scale make the products more affordable, which further widens their appeal and increases demand.

Figure 8: Driving an individual-centric cycle of supply and demand

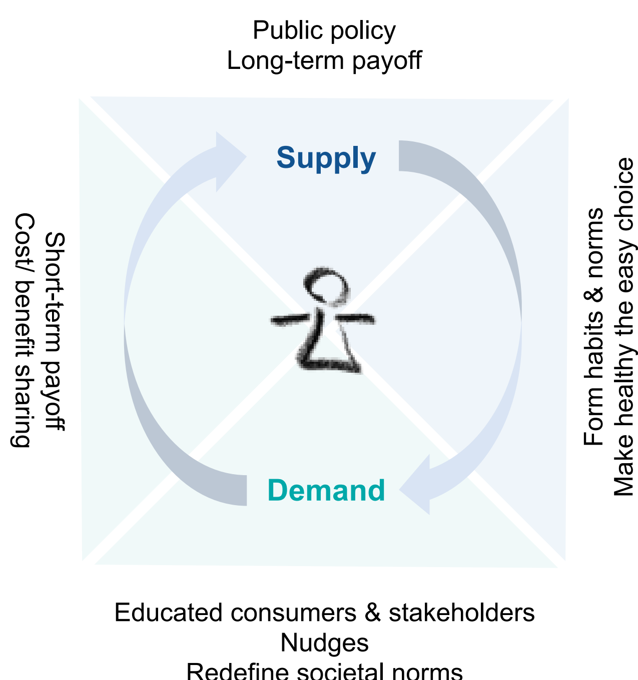


Figure 8 illustrates how to reach a tipping point by stimulating both consumer demand and product supply. It also outlines the drivers linking supply to demand and vice versa. The engines of this self-reinforcing cycle of demand and supply of MHLY products are norms and habits. They play a key role, both in driving demand – as in the organic food example – and in translating supply into further demand. Revolution Food (cf. p. 12) targets this link by using the foodstuffs children are exposed to at school to create healthy food habits and educate "lifelong healthy eaters" (29). Another example of addressing habits and norms is to make it normal to reclaim public spaces for exercise. In many Chinese cities, it is a common sight to see older women meeting up in parks and other public spaces to dance together. There are an estimated 150 million dancing grannies across China (38), who make it normal to exercise in public spaces. This can create demand from other parts of society for publicly accessible exercise equipment or bicycle lanes.

Health shapers can set the demand/supply cycle in motion through regulation, legislation, taxation or education. But they also have to harness other forces like technology as well as societal and consumer trends to shape norms and habits for healthy behaviour. Digitization and related technologies are enabling new business models on adaptive behaviour, discounting future events to the point of decision.

Demand

Emphasizing positive behaviours can reinforce demand and support behaviour change, either by educating consumers through nudges or by redefining societal norms. This can be driven either by public or by private actors. In the UK, for instance, the government has helped to create a Behavioural Insights Team, also known as the Nudge Unit (39), to use insights from behavioural science to help people make better choices. For example, the team tested and evaluated different approaches to smoking cessation, such as stickers on pregnancy-testing kits or substitution through e-cigarettes (40). The French government took a similar approach. It set up a programme called Neuroscience and Public Policy, which for example used cognitive and neuroscience methods to maximize the impact of prevention messages in TV advertisements (41).

Self-awareness of the cost of (in-)action on health is also a powerful driver of behaviour change. Health shapers can influence this as awareness strongly depends on the availability and accessibility of transparent and trusted information. One example is the need for more easily understandable food labelling (42).

Healthy societal norms or cornerstone habits can be shaped continuously but are much more powerful if instilled early in life. Thus, children's early positive experience with exercise can be a predictor of more active adults. However, the perception of the experience and the amount of parental support is as important as the amount of exercise (43,44). Industry can play an important role here in channelling demand to shape government policies.

Demand translates into supply if there is a clear payoff to providing it. A health shaper can support this by decreasing barriers or improving the payoffs, either by aggregating demand (cf. Singapore Business Park example) or by helping negotiate cost/benefit sharing mechanisms that make an offering more viable.

Supply

The supply side can be shaped by several different interventions. First, the government can mandate healthier offerings as a policy. However, this risks disrupting the economic cycle. Unappealing or prohibitively expensive products will not generate sufficient demand and governments are hesitant to over-regulate in this area. A more promising approach is to implement measures that increase confidence in short- and long-term payoffs. These measures include cost/benefit-sharing negotiations or additional incentives to mitigate the increased uncertainty of these payoffs.

Long-term payoffs are often a combination of direct financial returns and indirect returns. Indirect returns include creating a competitive advantage, human capital effects (differentiation and increased employer attractiveness, improved retention) or reduction of long-term liabilities regarding the health impact on customers, workers and/or the environment. In the absence of additional incentives, long-term payoffs will impact corporate decision-making if there is a strong belief within the leadership in the payoff, which they are willing (and able) to justify to the shareholders. Where this is not the case but a third party believes in a mid- to long-term payoffs, innovative financing could open new opportunities by creating "impact bonds": The third party makes the upfront investment and then is compensated based on performance along agreed outcome metrics. Omada Health is following such a business model by offering a behaviour change intervention to employers and health plans (45).

Other ways to strengthen long-term payoffs include stronger ties of health impact to shareholder value. As shown previously, health can be linked to above-average stock market performance and financial analysts are starting to identify and value opportunities associated with health, such as the reduction of obesity (46). Making health part of stock market indices and including health metrics in corporate reporting, akin to environmental and sustainability metrics, would more strongly support the case to stockholders of offering healthier products.

Translating supply back into demand requires first and foremost making the healthy choice the easy choice. Decreasing barriers is key to moving healthy behaviours into the mainstream. If healthy is an active choice, then it requires having the time and interest to gather information on which to base choices. Making healthy easy helps to make it the default choice. Several stakeholders have started to take action, such as the Singapore government, which is exploring policy options (47). An example for private sector action to decrease barriers for healthy choices is the already discussed front-of-pack labelling for healthy options (cf. p. 11). Other motivators are habits. If from childhood on we are used to eating healthy products, it becomes the default, hence increasing demand for such offerings (cf. Revolution Foods).

Trends create new opportunities

Another engine for creating new markets and new opportunities in MHLY comes from technology and societal trends. Three key trends stand out as particularly important:

1. **Increasing consumerization of health** (48): Consumerization is a transition from a B2B to a B2C business model. For health, this means turning a passive "patient" into a "consumer" who is actively involved in health choices and spending. A first step is increased transparency of lifestyle choices and their consequences. Key to this is providing trusted, easily accessible information, which may include, where possible, simulations of potential effects of more exercise or healthier nutrition. A second step includes increasing availability and access for all consumers to healthier options for products and services. For example, Sleepio provides cognitive behavioural therapy for sleep improvement as an easily accessible online service. Informed and educated consumers who appreciate the greater number of healthy options at their disposal can then, in a third step, assume true shared responsibility for their own health and wellbeing.
2. **Digitization**: Digitization has already disrupted a number of industries and is expected to have a significant impact on health. On the one hand, new hardware generates new, previously unknowable data. One example for this user-generated data is Jawbone, a company that has data on sleep patterns for more than 1 million people in the US (49). The dataset is sufficiently large to analyse sleep patterns on a per-county basis. As Jawbone also collects data on steps moved, this allows new insights into how culture and environment shape lifestyles (50). On the other hand, there has been a vast increase in analytical power. We now have the computing power which, together with the growing amount of health data, will double every two years until 2020 (51), and allow us to solve previously unsolvable problems. Together, genomic data, electronic medical records (EMRs) and user-generated data can pave the way for truly personalized acute and preventive medicine. With Watson Health, IBM has already started this journey (52,53).
3. **Environment**: There is a growing awareness and concern on the impact of our built and natural environment on health. Cross-cultural studies comparing incidence rates of Alzheimer's in African-Americans living in the US and Africans living in Nigeria have shown the role of natural, built and social environments (54). The two best understood drivers of the impact of environment on health are how it shapes behaviour and exposure to pollutants. Both in- and outdoor pollution have been linked to cancer (55,56). The Columbia University Mailman School of Public Health has shown that the health effect from reducing pollution in China could yield a net present value of $1.5 trillion and prevent 7.4 million deaths over the course of 15 years (1,57). There is also a growing awareness that urban planning can play an important role in encouraging or discouraging physical activity. Municipalities have reacted by increasing spaces for walking and encouraging the use of public parks for play and exercise.

Sleepio – Sleepio program (58-62)

What is being done?	Sleepio is an online-based cognitive behavioural therapy (CBT) program for sleep improvement
Role	Designing and delivering
Partners	NHS (promotes and in some areas covers costs) (59) Employers (provide program to employees) (60)
RoH	A placebo-controlled RCT demonstrated the effectiveness of the program (75% of people with persistent sleep problems were able to improve their sleep to healthy levels) (61) Better sleep has been linked to lower levels of anxiety, better mental health and better overall wellbeing (62)
RoI	☒ Short-term financial payback ☐ Long-term/indirect financial payback ☒ Attractive cost/benefit-sharing with other stakeholder (employers, NHS)

Areas for action

Innovative health-maximizing and financially viable offerings are possible within our current economic and policy settings. Companies such as Desso or UPS (63), which identified a business opportunity around healthcare logistics, prove this is the case. However, the big opportunities for action require cross-sector multistakeholder collaboration and innovation. In order to make this happen there is a need for action on three dimensions: creating the prerequisites for healthy living; shaping an individual-centric environment for MHLY; and providing the tools and platforms for multistakeholder innovation.

Creating prerequisites for healthy living lay the foundation for all health ecosystems. Three areas are crucial here:

1. **Agree metrics and create benchmarking databases**: Identifying and capitalizing on opportunities require data to compare best practices and identify gaps in processes, product portfolios, or policies. However, on the one hand, clear metrics for health are missing and due to a lack of trust, incumbents do not feel comfortable to share available data and best practices. Hence, agreed metrics for health and a trusted third party that collects, anonymizes and distributes benchmarking data are key prerequisites to action. One example for such a database is a consortium spearheaded by Japanese healthcare device-makers Terumo and Tanita, which together with 12 other companies collect data on workplace wellness from over 300,000 employees (64).
2. **Solve interoperability of health data**: Integrating health and medical data from different sources, such as electronic medical records (EMRs) or data generated by wearables, allows personalized prevention and will open up new business opportunities. Realizing this potential will require clarifying regulations, finding ways to ensure privacy of this sensitive data as well as creating a common platform and common standards.
3. **Create health-enabling built and natural environments**: Environments play a key role in shaping habits and instilling healthy behaviours as the norm. Key settings with the potential to improve our health and wellbeing are cities, workplaces and schools. Actions that should be taken include shifting norms to making the use of public parks for exercise the new normal, making active transport (such as bicycling and walking) central considerations in urban planning, and enforcing maximum pollution levels to make biking and walking more conducive.

An individual-centric environment for MHLY promotes change by activating individual behaviours. Health shapers and stakeholders who design and deliver offerings should collaborate on three issues:

1. **Build demand from consumers**: Engaged consumers want to live healthy and to reap the benefits of a long and healthy life but are hindered by a lack of transparency and confusing or contradictory messages on health impact. Thus a key action will be to create transparency founded in science regarding the impact of action and inaction on self and others. Secondly, we need environments in schools and families that instil healthy habits early by creating positive experiences on desirable behaviour such as healthy eating or exercise. Finally, insights from behavioural economics can also be used to change consumer behaviour and build demand for healthier products by benchmarking the physical and mental wellbeing of a household against its community. Research has shown that social comparison is a powerful motivator that for example leads to people reusing towels if they are told everyone else is doing it or reducing their power consumption if they are told they exceed the electricity required by a typical household in their community (65).
2. **Create incentives for businesses/ governments**: More creative ways beyond the standard tools of regulation, legislation and taxation are needed to incentivize businesses to focus on health. Such catalysts can include prizes or rankings that publicly recognize achievements, such as Fortune's Change

the World list of companies that made solving societal or environmental problems part of their competitive strategy (66). And it can also mean making health part of indices such as FTSE4Good or the Dow Jones Sustainability Indices. Including health impact (or "footprint") of products and wellbeing of employees in reporting standards aligns RoH with those on investment. This has been shown in occupational health and safety (OHS), where workplace fatalities and occupational injuries have been reduced by over 60% over the past 40 years since OHS reporting was introduced (67). Finally, risk- or reward-sharing schemes allow risk pooling and make interventions with a delayed benefit, such as providing a healthy workplace, more feasible.

3. **Raise awareness of impact bonds**: Impact bonds are a tool that can act as a catalyst by bridging short-term investment and the uncertainty of a long-term payback. For example, a proposal was made to provide funding to reduce the underlying causes of asthma-related emergencies in Fresno, California. The difference between the savings on the current cost of $17 million annually and the cost of removing mould from homes, replacing air filters and mattress covers etc. would be shared between the investor and the payers (68). However, the concept of health impact bonds is still not very well known and it will be necessary to raise the profile of these bonds as an emerging business opportunity. A related concept, already increasing in traction, is health-impact investment, such as the practice by the $108 million Global Health Investment Fund (69).

Finally, designing and delivering offerings for healthier lives requires multistakeholder innovation for which new tools and platforms are needed:

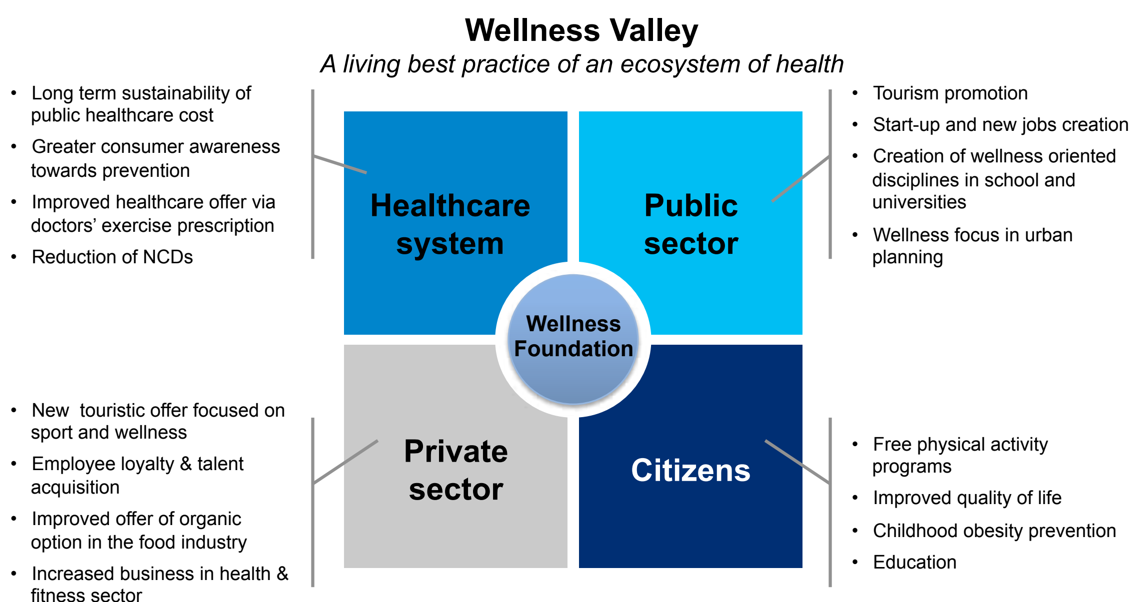
1. **Build awareness and C-suite support**: CEOs and CFOs have to realize the potential impact of health on their top and bottom lines. Simulations and scenarios can help demonstrate the MHLY opportunities, while databases of benchmarks and rankings help calibrate their own performance and identify first-mover advantages. Examples can also be very powerful in demonstrating the feasibility of these ideas.
2. **Foster new alliances**: In order to reframe the discussion, we need new platforms for dialogue, which may, initially at least, explicitly exclude the typical healthcare players. For example, bringing together labour unions, employers, pension funds and health insurers will bring a new perspective on the key opportunities in workplace wellness. In Singapore, the Health Promotion Board is such a body that can call stakeholders to action on specific health topics and metrics.
3. **Create room for disruptive ideas**: Identifying opportunities and converting concepts into proofs require room for experimentation and disruptive ideas. Both are often hard to find within established players. One answer can be health intrapreneurship, creating structures within bigger, established companies that allow individuals to act like an entrepreneur. Where room cannot be created internally, hackathons and incubators for new MHLY ideas can provide an idea generator and testing ground for feasibility.

What an ecosystem of health could look like

One example of what an ecosystem of health could look like is the Wellness Valley in Italy (70). The founder and president of Technogym, a fitness equipment and digital solution company, launched this project in 2002. Wellness Foundation, a non-profit organization, manages the Wellness Valley. The vision is to develop the Romagna region in northeast Italy into a proof of concept and benchmark for quality of life.

The Wellness Foundation acted as a catalyst in mobilizing all stakeholders in Romagna on the common goals of health, wellness and quality of life. Private companies, public administrators, tourism operators, schools, universities and the public health system are working together to improve local health and quality of life. Coordinated action also allows boosting the economy through innovative, health-enabling products, programmes and services. This, in turn, raises the quality of the environment, which attracts tourists and qualified personnel for local companies. In total, more than 200 public and private stakeholders are part of the Wellness Valley ecosystem of health.

Figure 9: The Wellness Valley ecosystem of health



Individuals, as patients, tourists, employees, students, entrepreneurs, consumers and citizens are at the core of the programme. All stakeholders meet monthly in working groups to develop specific initiatives in line with a shared Wellness Agenda. Initially, the Wellness Foundation acted as a catalyst, engaging individuals and putting forward ideas based on best practices from around the world. As the programme progressed, sector-driven communities formed and results became clear. Individuals increasingly utilized the offerings, embedded in the social fabric of the community, and put forward demand for new initiatives. Now that the tipping point has been reached, the Wellness Foundation focuses on tasks around coordination and promotion.

The regional government of Emilia Romagna has strongly supported the initiative by choosing the Wellness Valley as one of the pivotal projects within the regional strategy for health, tourism and innovation, and by signing in 2013 a specific agreement to develop the Wellness Valley project as a "live" lab and spread its best practices to the rest of the region.

The project has successfully implemented over 40 initiatives, yielding RoH in different ways, from free exercise programmes in city parks involving over 20,000 people, to physical exercise education schemes delivered to 17,000 primary school students and sport holiday packages involving hotels, beach clubs and thermal centres. The lasting impact of the Wellness Valley project on the health, social, cultural and economic environment of Romagna was confirmed in 2009. *Il Sole 24 Ore*, the leading Italian economic newspaper, published a survey ranking the Italian provinces according to quality of life and Romagna was number 1. In addition, the Italian National survey PASSI ranks Romagna better than the national average in terms of percentage of active and moderately active people. The learnings from the Wellness Valley also impact policy-making regionally and nationally. In 2014 a regional law was approved that enabled physicians to prescribe physical exercise for the prevention and treatment of NCDs. Following this was the introduction of exercise prescription within the national healthcare protocols by the Italian Ministry of Health.

The RoH of the Wellness Valley is closely aligned with an RoI for local businesses. Wellness is a key selling proposition for the region's important tourism industry and has also attracted wellness and fitness start-ups. Technogym itself has its corporate headquarter in Cesena. The Technogym Village includes both a world-class innovation centre in wellness and a collection of initiatives to improve employee health and wellness, such as buildings designed to encourage the use of stairs instead of lifts. The positive effect of the corporate wellness programme on Technogym's employees was confirmed by a scientific study published in 2015 (71).

Conclusions and outlook

As we have seen, it is possible to align stakeholders across industries and sectors to create an ecosystem of health, which delivers both an RoH and RoI. These ecosystems create markets and business opportunities across industries and sectors that sustainably improve the lives of the consumers. Harnessing the power of markets for health in this way will allow us to reduce the incidence of NCDs and mental ill-health. For individuals this means improved quality of life and unlocking their full potential. In return, this promotes economic growth by providing opportunities for entrepreneurs to serve the newly generated demand.

First steps are being taken to address the identified areas for action, such as solving the interoperability of data. For example, Philips and Salesforce have partnered to improve the care of diabetes by integrating different health data, from electronic medical records (EMRs) over digital health devices, such as connected glucose meter and activity tracking devices, to user-reported data (72). This give the individual better transparency not only on how their behaviour impacts their health but also lays the foundation for healthier behaviour.

Having understood the architecture of ecosystems of health and how to make them happen, more work will be required to integrate insights from behavioural sciences. What mechanisms work best to drive durable behaviour changes for certain RoH? What are cornerstone habits and how can we create ecosystems around them? Drawing on these insights is the key to lasting and sustainable impact by gaining traction with individuals and changing their behaviour.

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